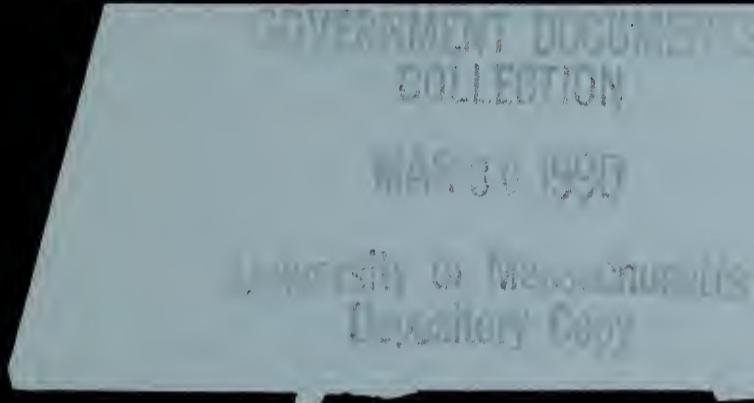


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Vocational Technical Education in Massachusetts



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Prepared by:

The Division of Occupational Education
Dr. David F. Cronin, *Associate Commissioner*

**1989-1990
STATE PLAN
FOR
VOCATIONAL EDUCATION**

Executive Summary

**Commonwealth of Massachusetts
Department of Education**

This abridged version of the State Plan For Vocational Education 1989-1990 is designed to provide an overview of the status of vocational, technical, and occupational education in Massachusetts.

This publication is an overview of a document that contains over 200 pages and this summary is not intended to replace the detail of the full State Plan.

The Division of Occupational Education publishes an annual program performance report that documents the results and achievements of programs supported by federal vocational education funds. For more information please contact:

Bureau of Planning, Research, and Evaluation
Division of Occupational Education
1385 Hancock Street
Quincy, MA 02169

■ Introduction

The Massachusetts State Plan for Vocational Education is a document that is intended to serve several purposes:

- a. To focus planning for vocational education in Massachusetts and to establish a coordinated set of activities to address the needs identified in a comprehensive statewide assessment; and
- b. To meet the requirements of the Carl D. Perkins Vocational Education Act (Public Law 98-524) and thereby remain eligible as a state to receive federal vocational education funds; and
- c. To inform the public of the programs and services provided to Massachusetts residents through vocational education.

The State Plan was developed in the context of the needs of Massachusetts residents and the needs of the vocational education programs in the state. Massachusetts has a long history in vocational education and one of the first and strongest state laws for vocational education (General Laws Chapter 74). This long history features extensive support from business, industry, and labor as well as the active participation of citizens in local communities and in cooperative efforts among cities and towns (e.g. regional school districts and community colleges). As a result, there are established facilities and support systems available to the inhabitants of this state.

Vocational education in Massachusetts is a complex and varied entity. It may be useful to consider the following examples of people served by these education programs:

- High school students who learn academic, occupational, and related competencies through an integrated learning environment that features:

applied learning
through competency based curricula
with student achievement measured by mastery of skills and knowledge and with considerable emphasis on the use of community resources
e.g. advisory committees, cooperative education etc.

- Single parents and displaced homemakers who study in vocational and career preparation programs at community colleges;
- Youth in the custody of the Department of Youth Services (DYS) who explore several occupations in specialized afternoon programs at vocational-technical schools;
- Welfare clients who are recruited to participate in adult vocational education programs operated by community colleges, school districts, and community based organizations;
- 7th and 8th grade students who explore occupational areas in special afternoon or summer programs in vocational-technical schools;
- Dislocated workers who move through accelerated and customized vocational education and training programs designed with private sector partners;
- 11th and 12th grade students in either vocational-technical schools or comprehensive schools who utilize the applied academic curricula (Principles of Technology, Applied Communication, Applied Mathematics);
- Group of inmates at a county house of correction who receive an adult basic education in conjunction with a vocational skills training program;
- Special needs students who need assistance tailored to their individual learning circumstances in order to succeed in a vocational education program.

These very few examples serve to illustrate not only the variety of individuals and groups served by vocational education, but also the challenge of describing in summary form the vast enterprise of vocational education in Massachusetts.

Historical Background

There are significant differences in the structure and content of programs that use the label vocational education from state to state and even within each state. To understand vocational education it is necessary to examine definitions and to understand both the historical roots of vocational education and the changing context of its operating structure.

In Massachusetts, the growth of vocational education during this century is due to grassroots support from citizens in the cities and towns who built the facilities and designed and operated the programs; and a long standing commitment from the state to a considerable level of involvement in the forms of financial aid and technical assistance and targeted financial assistance from the federal government.

Vocational education in Massachusetts has been shaped by several major developments since the turn of the century. In 1905, Governor William I. Douglas approved a resolution of the Massachusetts Legislature creating a Commission on Industrial and Technical Education. After a series of 24 meetings, the Commission recommended the creation of a system of vocational schools across the state. This was the 'birth' of the first state system of vocational education in the country. In 1917, the United States Congress passed the Smith-Hughes Act and thereby established federal presence with funding and direction.

During the next few decades, several state and federal legislative acts further influenced vocational education especially by adding program areas to the original emphases on agricultural and industrial fields of study. The positive image of vocational schools in Massachusetts was further enhanced in the 1940's by their outstanding contribution to the wartime effort to increase production and train new labor market entrants, particularly females, for a range of jobs.

Another major expansion began in the 1950's with a series of industry and community surveys that documented the need for the construction of regional facilities to serve the increasing school age population and to assist employers with both new entrants to the workforce and upgrading needs of current personnel. Between 1962 and 1978 a total of 26 regional vocational-technical schools opened to serve 217 cities and towns. In many cases, these new regional schools absorbed the staff and students from one or more existing vocational schools in the area. Both federal and special state financial assistance provided important backing to this rapid expansion of learning opportunity.

As a result of the surveys of industry and community input through public hearings and town meetings, the program offerings of vocational education expanded considerably with the development of regional vocational school districts. Technical subject areas such as drafting, electronics, and data processing were included in many of these new facilities and program areas such as health occupations expanded their occupational focus.

City and town vocational schools, the foundation of the vocational education movement in Massachusetts, have expanded and modernized over the past three decades. Strong community support for vocational education is evident in the construction of new facilities in Holyoke and Springfield during the 1985-1989 years.

The state of Massachusetts established 15 community colleges during the 1955-1973 period. Most of these new colleges concentrated initially on the academic and general courses needed to develop students for success at a four year college or university or for general life skills. The decades of the 1970s and the 1980s have seen an increase in the career and occupational program offerings at these two year public postsecondary institutions. An emerging development which promises to clear a new pathway to educational and career success for students is the 'tech-prep' (two plus two) program of studies that connects the last two years of high school study with a two year program of study in a technical subject area in a community college or technical institute.

Governance Structure

State Board of Education

The Massachusetts State Board of Education, by law, has planning and policy setting responsibility for occupational and vocational-technical education for the Commonwealth. The State Board recognizes that it shares responsibility with school committees and postsecondary governing boards in its policy setting to provide leadership and direction for occupational and vocational-technical education. The State Board and the Board of Regents of Higher Education published a revised Joint Policy on Occupational Education on November 26, 1986. The Joint Policy is intended to give direction to planning for collaboration and cooperation by identifying important areas of agreement between the two Boards regarding occupational education.

Division of Occupational Education Department of Education

The state administration of occupational and vocational-technical education is overseen by the Massachusetts Board of Education.

The Division of Occupational Education is directly responsible for the various aspects of administering and supervising both federally funded and state approved (Chapter 74) occupational and vocational-technical education programs.

The Division of Occupational Education, headed by the Associate Commissioner, is organized by six bureaus that supervise and implement the many diverse activities associated with occupational programming:

Administrative Services
Education, Training, and Employment
Financial Management
Planning, Research, and Evaluation
Postsecondary Occupational Education
Program Services

The Massachusetts Department of Education operates six Regional Education Centers in addition to the central office in Quincy.

Each of these Centers has a Regional Center Director and a Team Leader for Occupational Education. The regionally based occupational education staff provide direct technical assistance to school districts, community colleges, other service providers and the general public. This technical assistance ranges from helping schools prepare applications for federal funds to coordinating onsite evaluations of programs.

The map shows which communities are included in each of the six Regional Centers.

State Council on Vocational Education

The State Council on Vocational Education is an advisory group established in federal law (Perkins Act) and composed of thirteen members. The Perkins Act requires that seven of the Council's members be from the private sector (five from business and industry and two from labor organizations); the remaining six members are drawn from secondary and postsecondary vocational education institutions, career guidance and counseling organizations, and from representatives of special populations.

The State Council's duties include advising on the development of the State Plan; consulting on the development of criteria for evaluating vocational education programs; and recommending procedures for the further involvement of business, industry and labor in vocational education programs. The State Council also is responsible for evaluating the vocational education program delivery systems assisted under the Perkins Act and the Job Training Partnership Act and making recommendations on the effectiveness of coordination between the two Acts.

Governance Structure

The Massachusetts State Council on Vocational Education has operated a special project on coordination between community colleges and school districts over the past three years. This project has sponsored the Leadership Committee on Coordination, a statewide meeting in September, 1987, and the development of an inventory of joint agreements. A second statewide meeting is planned for 1989 with the development of a publication of recommended practices for successful coordination.

Inquiries about the State Council on Vocational Education may be directed to Abigail Slayton, Executive Director, Massachusetts Council on Vocational Education, State House, Room 51, Boston, MA 02133

The Massachusetts Commission for Occupational Education

The Massachusetts Commission for Occupational Education is an advisory group established in state law (Chapter 837 of the Acts of 1969) and composed of sixteen members; ten members are appointed by the State Board of Education, six members are appointed by the State Board of Regents for Higher Education. Each member represents a group or an organization impacted by occupational and vocational-technical education. The Associate Commissioner of Occupational Education serves as executive secretary to the Commission.

This excerpt from Chapter 837 provides the mission statement for the Commission:

The Commission shall make recommendations to the Board of Education through its Division of Occupational Education relative to the formulation, administration, implementation, and supervision of the State Plan for occupational, vocational and technical education, shall from time to time suggest to said division new programs in occupational education and in the field of research and development, and shall report its evaluations of existing occupational education program services and activities together with recommendations for any necessary changes for the purpose of assisting said division in coordinating, promoting and establishing such programs.

The Commission has established the following priority topics for their focus for 1989-1990:

Reauthorization of Perkins Act (P.L. 98-524)

Vocational Teacher Preparation

Special Education/Vocational Education

School Finance Reform

Status of Vocational Education in Boston

Secondary/Postsecondary Interface
School/College Collaboratives

Organization of Employment Related
Education and Training

State Plan for Fiscal Years 1991-1992

Inquiries about the Massachusetts Commission For Occupational Education may be directed to John McDonagh, Division of Occupational Education, 1385 Hancock Street, Quincy, MA 02169.



Governance Structure

Massachusetts supports a locally based delivery system for occupational and vocational-technical education. In general, for city and town schools, the local administration rests with the staff appointed by an elected or appointed school committee or board of trustees. For regional schools with several communities as members, certain administrative decisions require the approval of two-thirds of the member cities and towns.

Chapter 74 of the Massachusetts General Laws, as amended by Chapter 731 of the Acts of 1988, governs state approved and state aided vocational-technical education programs in these areas: agriculture, allied health, automotive, construction, marketing, service occupations, industrial manufacturing programs, and technical programs. The Chapter 74 Regulations associated with this law identify ten factors or criteria that a program must satisfy in order to be eligible for state aid: organization, control, location, equipment, courses of study, qualifications of teachers, methods of instruction, conditions of admission, employment of pupils and expenditures.

Occupational or "non-Chapter 74" programs are offered in the areas of business and office occupations, technology education (industrial arts), and consumer and homemaker. These programs are not subject to the special requirements of the Chapter 74 Regulations and are sometimes organized as individual courses.

Funding for occupational and vocational-technical education comes from local, state, and federal sources. Federal funds provide about 6% of total costs, the remaining 94% is covered by local and state funds.

The facilities where occupational and vocational-technical education programs are offered include locations in 220 school districts and 18 postsecondary institutions (community colleges and technical institutes). These facilities consist of a variety of organizational structures, ranging from an individual school in one city or town to a regional school with several cities and towns as members. Three county agricultural schools offer specialized programs for Essex, Norfolk, and Bristol counties. Many secondary and postsecondary program service providers accept students from outside of the immediate district or area.

Enrollments in these occupational and vocational-technical education programs are monitored on both an individual school and statewide basis. During school year 1987-88, fifty four (54%) percent of public high school students were enrolled in occupational or vocational-technical education programs.

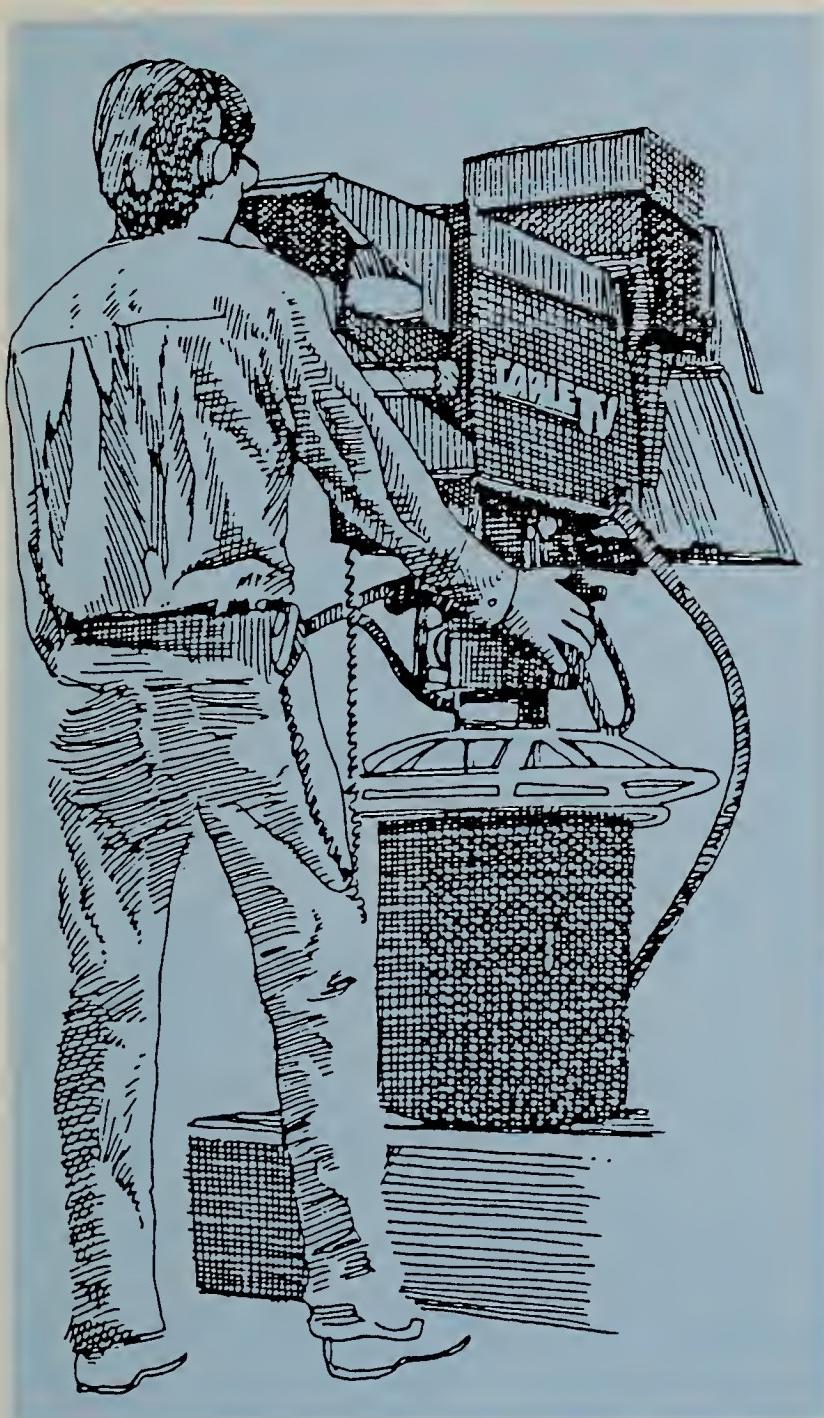
The Division of Occupational Education also collects and reviews data on student placement and follow up for Chapter 74 vocational-technical education programs. Both student and employer satisfaction studies are conducted and these studies have demonstrated high levels of satisfaction from both recent program graduates (2-4 years out of school) and their supervisors. The findings of the most recent study (Abt Associates, Inc.; 1987) have been used in the development of this State Plan.

The Board of Regents for Higher Education and the Board's staff oversee the operations of the state's 15 community colleges.

Other service providers that receive federal vocational education funds are community based organizations and correctional facilities. Community based organizations usually work in conjunction with a school district or community college to provide support services to specific populations that are necessary to acquire skills training and vocational-technical education.

Five vocational student organizations are currently operating in the Commonwealth: Distributive Education Clubs of America (DECA), Future Farmers of America (FFA), Future Homemakers of America/Home Economics Related Occupations (FHA/HERO), Office Education Association (OEA), and Vocational Industrial Clubs of America (VICA). These organizations work to improve the quality and relevance of instruction, develop student leadership, enhance citizenship, overcome sex and race discrimination and stereotyping, and serve students of special populations. A hallmark of the work of vocational student organizations is the strength of their partnership with business and industry.

Governance Structure ■



SERVICE (cont.)

Private sector representatives provide an important service to vocational-technical education through participation on program and general advisory committees. Each Chapter 74 program must have an active advisory committee with membership from business, industry, and labor relevant to the occupation and from parents and students. Each school that operates one or more Chapter 74 programs must have a General Advisory Committee that must include the chairman of each program advisory committee. Chapter 74 advisory committees make significant contributions to the quality of vocational-technical programming, for example: labor market conditions and trends, validation of tasks and competencies, equipment and facilities advice, career guidance and placement, professional development, community public relations, and program evaluation. The Division of Occupational Education sponsored the development of a Guide to the Effective Utilization of Vocational Technical Advisory Committees. This Guide was disseminated in training sessions across the state in September, 1987 and is available upon request.

Private sector representatives provide an important service to vocational-technical education through participation on program and general advisory committees.

Goals and Objectives

GOALS AND OBJECTIVES FOR FISCAL YEARS 1989-1990

The goals and objectives that are presented on the following pages have emerged from the assessment of need that was carried out over an eighteen month planning period (January 1986—July 1987). The findings of this assessment and activities proposed to meet these goals and objectives are listed on the charts in the State Plan. The list of findings and activities includes a coding that relates each item to the related goal and objective.

These goals and objectives are proposed for a four year period: Fiscal Years 1989-1992. The Massachusetts Department of Education is currently operating on the basis of a five year plan that also runs through 1992. It should be noted that the goals presented in this State Plan for Vocational Education are most significant and far reaching and will not be completely achieved during the life of this Plan (Fiscal Years 1989-1990).

The activities proposed in the State Plan are intended to be accomplished during the next two fiscal years and are intended to contribute noticeably to the accomplishment of the stated goals and objectives. The results from the activities will be the measure of the success of this Plan and those results will be used to reassess the goals and objectives for continued pursuit during Fiscal Years 1991 and 1992.

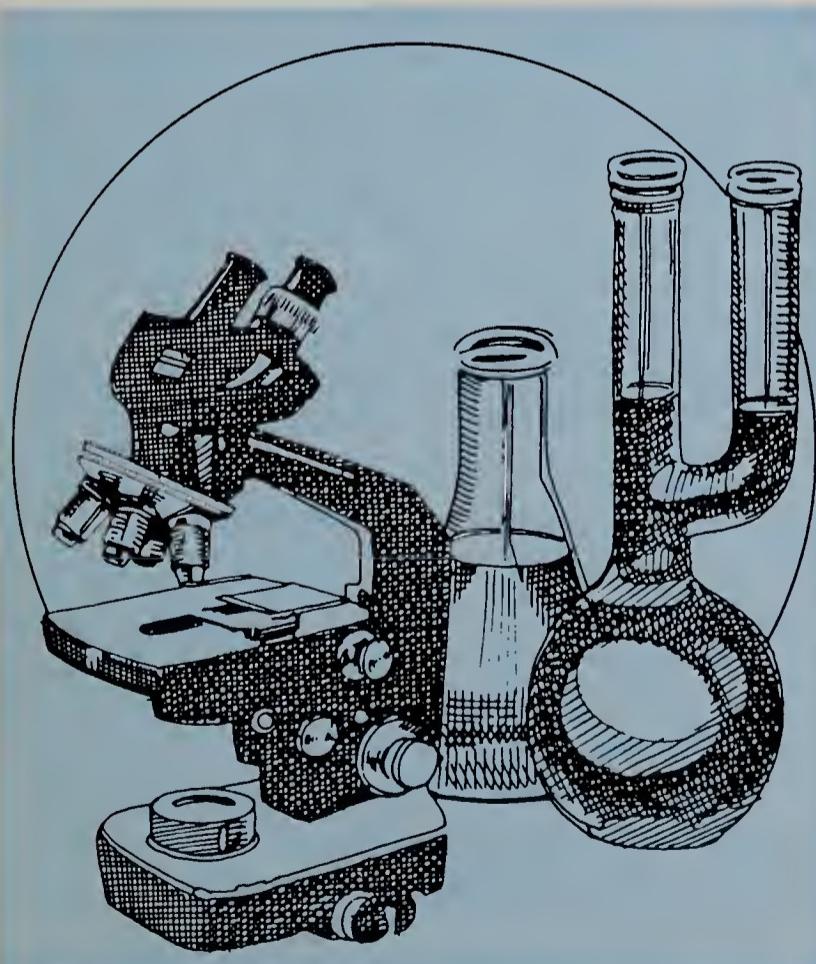
The activities proposed in the State Plan are intended to be accomplished during the next two fiscal years and are intended to contribute noticeably to the accomplishment of the stated goals and objectives.

- A. TO ASSURE EQUAL ACCESS AND TO ASSURE EQUAL OPPORTUNITY FOR ALL STUDENTS TO SUCCEED IN VOCATIONAL EDUCATION.
 - 1. Successful innovative strategies for vocational schools to recruit and retain students, especially from target populations will be reported.
 - 2. The number of racial and linguistic minority students in vocational education programs will increase.
 - 3. An increased number of pregnant and parenting teenagers will receive education, training, and other services through vocational education.
 - 4. The needs and success rate of linguistic minority students for vocational education programs and services will be assessed.
 - 5. Vocational education programs to address the needs of dropouts will increase, especially for economically disadvantaged populations.
 - 6. Issues affecting vocational education programs will be included in school district comprehensive equity plans.
 - 7. Support services for special needs students will continue to be provided to enhance these students' capacity to succeed in vocational education and to transition effectively to the workplace.
 - 8. Vocational education programs will be available to youth in the care of the Division of Youth Services on a more permanent basis.
 - 9. Incarcerated populations will continue to be served with vocational education programs that connect to adult basic education. Funds beyond the level required by the Perkins set-aside will be provided.
 - 10. Vocational education programs that address the unique training needs of adult refugee populations will be supported.
 - 11. Model vocational education programs that link parent training with their children's education will be encouraged.
 - 12. Students who choose to study a non-traditional occupation will be supported to succeed in vocational education including placement activities.
 - 13. The number of technical and technology dominated occupations will be expanded for the purpose of attracting female students into high wage occupations.
 - 14. Employed adults will be recruited to serve as mentors and to provide career counselling to youth at risk to drop out or to be underemployed or unemployed.

Goals and Objectives

B. TO IMPROVE THE BASIC AND OTHER ACADEMIC SKILLS OF STUDENTS PARTICIPATING IN VOCATIONAL EDUCATION.

1. Students scores will increase in those schools where 9th grade students in occupational and vocational programs scored low on basic skills tests administered through the Statewide Basic Skills Testing Program.
2. Teachers in vocational schools and programs will have a greater understanding of methods of improving the basic skills of their students.
3. Vocational educators will have a more complete understanding of the interrelationship of academic and occupational competencies.
4. The capacity of vocational educators to assess the interests and abilities of potential students will be strengthened.
5. An increased number of secondary school students will learn through an applied methodology.
6. Methods of assessing the mathematics, science, and communication competencies that students acquire in vocational education programs will be demonstrated.



C. TO IMPROVE AND UPDATE THE CURRICULUM, PERSONNEL, AND FACILITIES AVAILABLE TO VOCATIONAL EDUCATION STUDENTS.

1. Promising practices in vocational education will be documented and promoted.
2. Leadership potential and capacity of vocational administrators and teacher leaders will be enhanced.
3. The pool of individuals eligible to teach in vocational education will increase, especially in areas of acute shortage.

Special emphasis will be given to recruitment of minority and nontraditional female vocational education teachers.
4. Vocational teachers will improve their ability concerning occupational and pedagogical skills as follows.

educational technology
student learning styles
application of science, mathematics, and communications competencies
expanded knowledge of specialty occupational areas
entrepreneurship opportunities
teaching diverse populations
5. Performance based vocational teacher education programs will be monitored.
6. The capacity of vocational teachers to develop, manage, and evaluate curriculum will be increased.
7. A statewide vocational curriculum resource center to provide materials and training to teachers and other school staff will continue to be supported.
8. The adoption of competency based vocational education methods and curricula will be promoted.
9. Instructional and evaluation materials to improve safety and health in vocational education will be field tested and disseminated.
10. Vocational schools will improve their ability to plan, acquire, and utilize technology in the curriculum.
11. The activities of vocational student organizations, as an integral part of vocational education programs, will be available to an increased number of students, especially target populations.
12. Vocational school involvement in new state supported initiatives for school improvement will be encouraged.

■ Goals and Objectives

D. TO EDUCATE AND TRAIN STUDENTS IN OCCUPATIONAL FIELDS THAT PROVIDE OPPORTUNITIES FOR GROWTH AND ADVANCEMENT.

1. High quality occupational information will be available to vocational educators and students.
2. Vocational educators will remain current on the nature of occupations.
3. Incentives will be created to encourage the discontinuance of vocational education programs that do not adequately address labor market needs.
4. Equipment in vocational education programs heavily impacted by technological developments will be upgraded.
5. The establishment of an increased number of technical occupational fields of study will be promoted.
6. An increased number of females will be enrolled in technical and technology dominated occupations.
7. An increased number of single parents and displaced homemakers will receive skills training and support services.
8. Technology education programs for 7th and 8th grade students will be developed and field tested.
9. School-to-work transition programs for general program students, primarily in urban areas, will be supported.
10. New programs and/or modification of existing programs will be encouraged to incorporate the skills and knowledge of new technology.
11. Dislocated workers will be served in vocational education and training programs.
12. Programs, services and activities designed to eliminate sex bias and stereotyping and to enable girls and women to support themselves and their families will be provided.

E. TO COORDINATE VOCATIONAL EDUCATION PROGRAMS AND SERVICES WITH OTHER PUBLIC AGENCIES AND THE PRIVATE SECTOR SO THAT RESIDENTS OF MASSACHUSETTS HAVE ACCESS TO THE FULL ARRAY OF SERVICES AVAILABLE

1. Information on vocational education programs will be distributed to a wide audience.
2. The Interagency Coordination Committee will assist the Division of Occupational Education to identify and implement coordination strategies.
3. Programs and activities supported by the Carl D. Perkins Vocational Act will be coordinated with programs and activities supported by the School Improvement Act of 1985 (Chapter 188).
4. Vocational education will coordinate with adult basic education to more effectively connect their programs and services.
5. Vocational education will coordinate with other state agencies in the employment and training system.
6. Vocational schools, comprehensive schools, and community colleges will more effectively coordinate their programs.
7. Vocational schools, community colleges and the private sector will form additional partnerships.
8. Vocational education will coordinate with providers of apprentice training programs to share data, to improve curricula, to improve teaching staff, and to assist in recruitment of underrepresented populations.
9. Vocational education advisory committees will be more effectively utilized.
10. The operation and initiatives of technical committees, composed of employers and labor representatives, will be supported.
11. The strengths and weaknesses of the relationship between special education and vocational education will be assessed.
12. The special support services needed by program participants, including child care services, will be provided on a coordinated basis with other state agencies.
13. A greater number of welfare clients will be provided skills training that complements support services received in programs operated by other state agencies.

Special Focus on Equity ■

Equity considerations are extremely important for education and the economy in general and especially critical for vocational-technical education. The changing demographics of the workforce as highlighted in recent national reports on the economy demand even greater attention and action on the elements of the education and employment systems that impact opportunities for females and minorities to succeed in the workplace. Vocational-technical education must continue to advance a leadership position on these equity issues as this set of educational programs articulates with other sectors of public education, with the parents of present and potential students, and with the employer community.

The Massachusetts State Plan for Vocational Education for Fiscal Years 1989-1990 devotes considerable attention to equity concerns as outlined in the Plan's goals and objectives (pp. 10-15) and in greater detail throughout the activities chart (pp. 28-49).

It is important to emphasize three features of these proposed activities to enhance equity in vocational-technical education:

1. The need to considerably increase and expand career exploratory programs for all students in grades K-12, but especially for female students and for economically disadvantaged students.
2. The need to involve parents of these students in the effort to effectively communicate career and occupational information.
3. The need to involve employers in the development and presentation of quality occupational information to students and parents and to continue analysis and action on equity issues related to placement of program completers.

Equal Access

Equal access to vocational programs is an important requirement of the Perkins Act and has been a central feature of Massachusetts' vocational education system for several years. The Massachusetts Board of Education has instituted a general policy that all state residents have right of access to the public schools of the Commonwealth and equal enjoyment of the opportunities, advantages, privileges and courses of study at such schools without regard to race, color, sex, religion, national origin, English language proficiency or handicap.

Furthermore, it is the policy of the Board of Education that equal access to vocational education is especially important, and consequently it has developed specific regulations to ensure this policy is enacted. Massachusetts' long-standing equal access policy will be pursued vigorously during fiscal years 1989-1990 and includes the following elements: Personnel, Division of Occupational Education Procedures, Technical Assistance, and Sex Equity Projects.

Equity considerations are extremely important for education and the economy in general and especially critical for vocational-technical education.

Labor Market Conditions: Employment Needs

In order to improve the relevance of vocational skills training programs to enhance graduates' chances for employment, the Division of Occupational Education restricts new program development to those occupations that demonstrate a high labor market demand (in terms of the number of projected job openings and/or projected rate of growth of the occupation).

During fiscal years 1989-1990, service providers applying for P.L. 98-524 funds for new programs must document labor market demand in one of two ways: (a) the inclusion of the proposed new program on the Statewide Demand List or (b) through evidence provided by the Service Providers that there is local labor market demand in its area of the state for that occupation. In addition, quality of occupation factors must be evident prior to approval of a new program.

The Division of Occupational Education restricts new program development to those occupations that demonstrate a high labor market demand.

This section first describes the projected distribution of jobs by industry sector in Massachusetts for 1995. Then, a summary of projected job growth by occupational area is given. Finally, the Statewide Demand List, which identifies the occupational fields with high statewide labor demand, is presented.

Massachusetts' Labor Market Conditions 1984-1985

During the period 1984 to 1995, the Massachusetts economy is projected to generate over 450,000 new jobs, a growth rate of about 16%. In 1985, Massachusetts maintained the lowest unemployment rate of the 11 larger industrial states for the third consecutive year, and tied New Hampshire for the lowest unemployment rate in the nation. The vigor of Massachusetts' economy has been attributed in part to its diverse industrial structure and this diverse industrial structure is expected to continue to provide strong job opportunities throughout the Commonwealth during the next decade.

Employment Distribution by Sector: 1995

The pie chart illustrates the projected distribution of jobs across the seven industry sectors for 1995. As shown in this chart, the services sector will account for the largest share of all jobs (34.6%), followed by the wholesale and retail trade sector (23.6%), and the manufacturing sector (21.7%).

Substantially smaller shares of the 1995 employment will be found in the finance, insurance, and real estate sector (6.3%), the transportation, communications, and utilities sector (4.7%), the government sector (5.4%), and the construction sector (3.7%).

The projected employment distribution for 1995 depicted in the pie chart represents some shifts from 1984. Figure A compares the employment distribution across the seven industry sectors for 1984 versus 1995. The most notable shifts are in the services sector, the manufacturing sector, and the government sector.

Between 1985 and 1995, the services sector will increase its share of total statewide employment from 31.8% to 34.4%; the government sector will decrease its share from 6.2% to 5.4%; and the manufacturing sector will decrease its share of total employment from 23.6% to 21.5%.

Labor Market Conditions

FIGURE A 1995 EMPLOYMENT DISTRIBUTION

COMMONWEALTH OF MASSACHUSETTS

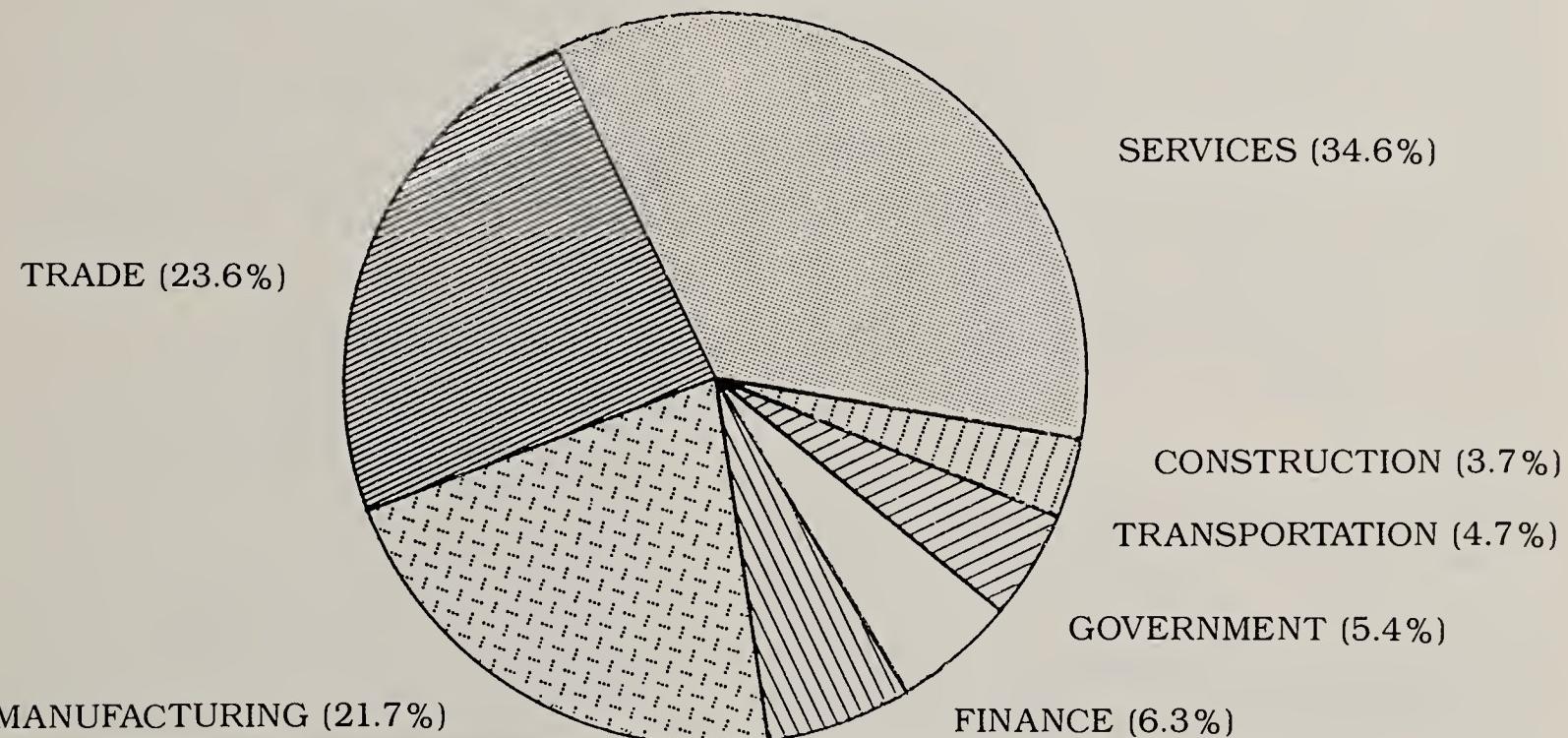


FIGURE B
PROJECTED JOB GROWTH
BY INDUSTRY SECTOR
1984-1995

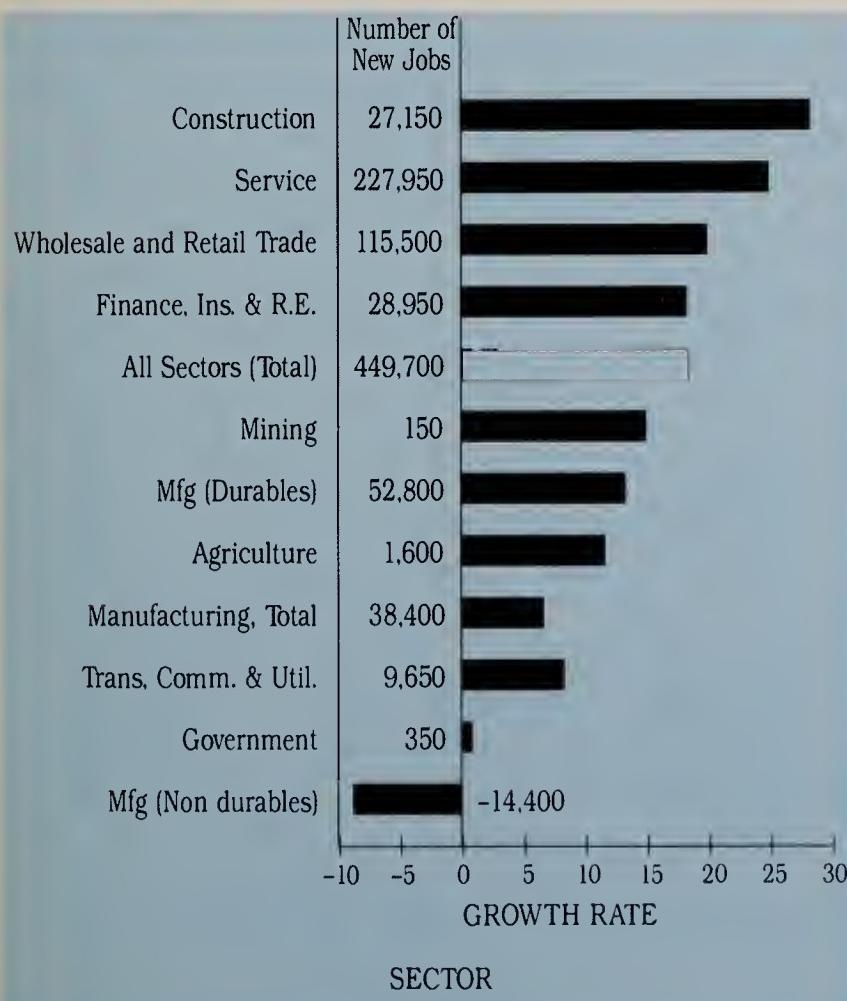
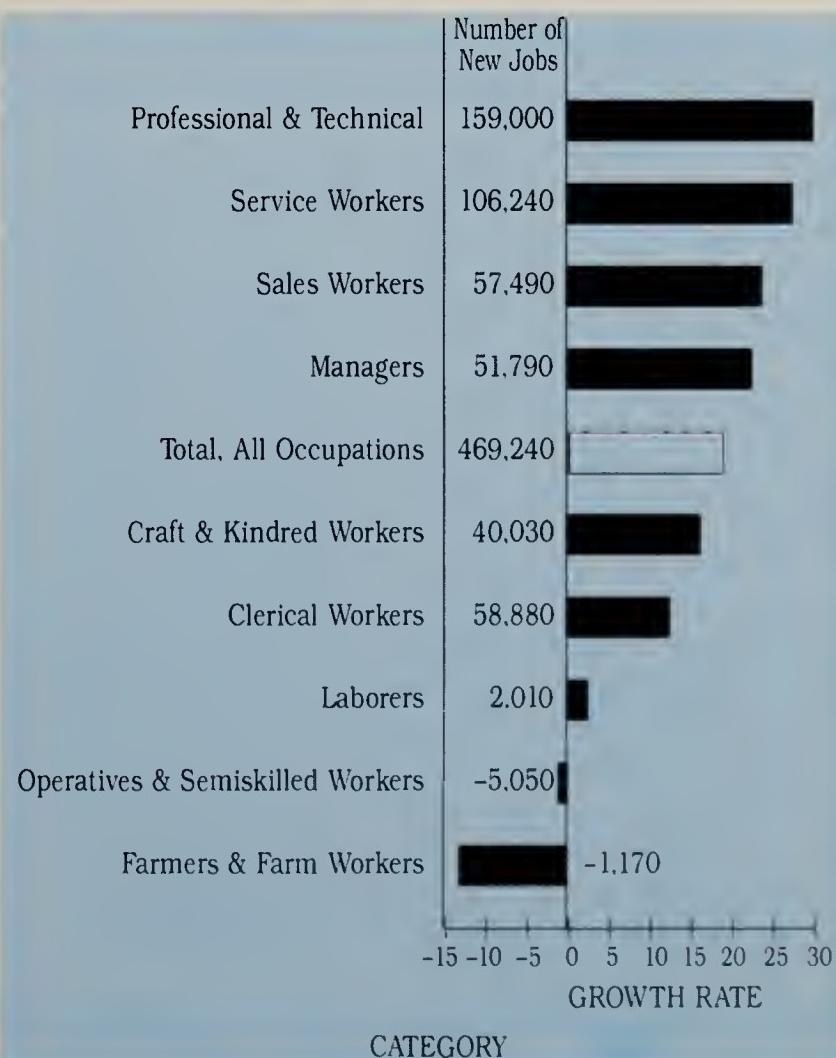


FIGURE C
PROJECTED JOB GROWTH
BY OCCUPATIONAL CATEGORY
1984-1995



Source: Massachusetts Job Outlook Occupational Employment Projected Changes 1984 to 1995
(Massachusetts Division of Employment Security, January, 1987)

Labor Market Conditions: Employment Needs

Projected Job Growth 1984-1995

The projected employment distribution by industry sector does not by itself provide a basis for vocational programming decisions.

It is also important to consider projected job growth, in terms of both the number of new jobs and the rate of growth. Figures B and C depict projected job growth for 1995 by industry sector and by general occupational category. In addition, the Department of Employment and Training document Massachusetts Job Outlook: Occupational Employment Projected Changes 1984 to 1995 provides detailed employment projections for more than 500 occupations.

Statewide Demand List

The Division of Occupational Education has developed a Statewide Demand List which identifies those skills training programs associated with occupations for which there is currently a high labor market demand statewide (according to the most recently available data from the Massachusetts Department of Employment and Training). In addition, a program was included on this list only if: (a) the occupation requires less than baccalaureate level training, (b) the number of projected job openings are ample enough to accommodate the projected number of program completers (based on prior enrollment data) and (c) prior placement data indicates that program completers are likely to secure training-related jobs or to pursue further education.

During fiscal years 1989-1990, P.L. 98-524 funds for new programs may be used only for those programs on this Demand List or for other programs for which the service provider can provide adequate evidence that there is a local area or sub-state labor market demand. This latter option is provided to service providers in recognition of the fact that there is some diversity in Massachusetts' economy for different regions of the Commonwealth. Quality of occupation factors must be evident prior to approval of a new program. These factors include advancement opportunities, wage and benefit profile, and stability of employment potential. Advancement opportunities include self-employment.

The Department of Employment and Training has created booklets that describe in detail the labor market projections for the 15 sub-state districts that conform to the Service Delivery Areas organized under the Job Training Partnership Act (JTPA).

Listed below are those occupations which require less than baccalaureate level training and which demonstrate a high labor market demand according to currently available data from the Massachusetts Department of Employment and Training. The Department of Education restricts new program development to the occupations on this list, amendments to this list, or programs for which an eligible recipient documents sub-State labor market demand to the satisfaction of the Division of Occupational Education.

DISTRIBUTIVE OCCUPATIONS

040400 Finance and Credit
040800 General Merchandising
041700 Real Estate
041800 Recreation and Tourism

HEALTH OCCUPATIONS

070101 Dental Assisting
070102 Dental Hygiene
070103 Dental Laboratory Technology
070301 Medical Laboratory Technology
070302 Practical Nursing
070303 Nursing Assistant
070305 Surgical Technology
070501 Radiologic Technology
070503 Nuclear Medicine Technology
070903 Respiratory Therapist
070904 Medical Assistant
070906 Health Aide
079901 Medical Record Technology

CONSUMER AND HOMEMAKING

090203 Food Management, Production, and Service

OFFICE OCCUPATIONS

140100 Accounting and Computing
140201 Computer and Console Operator
140400 Information Communications
140700 Stenographic, Secretarial, and Related

TECHNOLOGY

160108 Electronic Technology
160109 Computer Service Technician
(Electromechanical Tech)
160113 Mechanical Technology
160401 Computer Programmer

CONSTRUCTION, INDUSTRIAL, AND MANUFACTURING

170100 Heating, Ventilating, and Air Conditioning
170302 Automotive Mechanics
170600 Business Machine Maintenance
171001 Carpentry
171003 Heavy Equipment Operation and Maintenance
171004 Masonry
171007 Plumbing and Heating
171099 Construction and Maintenance
171300 Drafting Occupations
171400 Electrical Occupations
171500 Electronic Occupations
171900 Graphic Communications Occupations
172900 Quantity Food Occupations
172902 Cook/Chef

COORDINATION

Vocational education has promoted and participated in an intensified period of coordination on both the local and the state level during the past few years. The Department of Education plans to actively support the advancement of coordination initiatives in order to promote improved program operations, a more efficient match of resources, and the elimination of unwarranted duplication. In fact, the following goal has been proposed in this Plan for Fiscal Years 1989-1990:

TO COORDINATE VOCATIONAL EDUCATION PROGRAMS AND SERVICES WITH OTHER PUBLIC AGENCIES AND THE PRIVATE SECTOR SO THAT RESIDENTS OF MASSACHUSETTS HAVE ACCESS TO THE FULL ARRAY OF SERVICES AVAILABLE

The state employment and training system in Massachusetts is currently in a period of significant reorganization that will impact vocational education. The Massachusetts Jobs Council has completed a report to the State Legislature and this report included recommendations for a coordinated approach for the operation of employment training and education for employment programs. The Commissioner of Education is a member of this group of top state government officials; business, labor, and local government officers.

The following examples of coordination activities that were initiated by or involve vocational education does not represent the complete list of local and state efforts, but is meant to illustrate the many positive steps taken to connect programs.

1. The Interagency Coordination Committee established to assist the Division of Occupational Education to conduct the assessment of the needs of target populations and to identify coordination strategies among state agencies and local service providers, has assisted in the development of this Plan and will continue to meet during the next two years to refine these strategies and to assess progress in meeting the needs of target populations, including welfare clients.

2. The staff of the Division of Occupational Education and the staff of the Board of Regents will continue to coordinate the review and approval of projects at community colleges supported by Public Law 98-524 funds.

3. The Division of Occupational Education will continue to coordinate with the Bay State Skills

Corporation and other state agencies to match the resources of support services and skills training for single parents and displaced homemakers.

4. The Division of Occupational Education will foster increased collaboration and effective working relationships amongst community based organizations, school districts and community colleges.
5. The Department of Education will continue to fully participate as a partner in the work of the Youth Coordinating Council, a group that monitors the statewide funding initiatives under the 8% set aside for education coordination under the Job Training Partnership Act.
6. The Department of Education will work with other state agencies and groups to effect improved coordination between adult basic education and adult training and retraining programs.
7. The Division of Occupational Education will continue to coordinate with the Department of Welfare and other state agencies to match resources for an expansion of vocational education and training programs for people who are receiving Aid to Families with Dependent Children or General Relief.
8. The Division of Occupational Education will continue to work with the Department of Youth Services and other Divisions of the Department of Education to provide a stable base of funding for programs that serve the occupational exploration and vocational education needs of youth committed to the Department of Youth Services.
9. The Division of Occupational Education will work with the Executive Office of Economic Affairs, the Executive Office of Labor, the Department of Employment and Training, the Industrial Services Program and other state agencies to coordinate programs and services for dislocated workers.
10. The Division of Occupational Education will coordinate with the Department's Division of Special Education, with the Massachusetts Rehabilitation Commission, and other state agencies to effect smooth transition between the programs represented by these agencies.
11. The Division of Occupational Education will participate as a member of the Massachusetts Occupational Information Coordinating Committee.

■ Technical Committees

The State of Massachusetts has utilized representatives of business, industry and labor organizations in the development and validation of curricula through our competency-based vocational education programs during the past four years. Local program advisory committees and special state-wide groups have been asked to review and validate proposed vocational curriculum in 25 occupational areas. Industry representatives have also served as members of the Advisory Committee to the Massachusetts Vocational Curriculum Resource Center.

During the two year period of this state plan for vocational education, the Division of Occupational Education will operate a total of three technical committees as described in Public Law 98-524: automotive technology, drafting, and graphic communications.

These technical committees will be established by the Division in consultation with the State Council on Vocational Education.

The purpose of these technical committees will be to advise the Division on the development of model curricula to address state labor market needs. These technical committees will develop an inventory of skills that may be used by the state to define state-of-the-art model curricula in specific occupational areas.

Such inventory will provide the type and level of knowledge and skills needed for entry, retention and advancement in occupational areas taught in Massachusetts. Further, these technical committees will assist the state by providing specific analysis of labor market trends in the occupational area (e.g., employment prospects, training requirements, technology forecasts, etc.). The Division will also request the recommendations of these technical committees concerning the professional improvement of vocational education personnel relative to the specific occupation.

These technical committees will develop an inventory of skills that may be used by the state to define state-of-the-art model curricula in specific occupational areas.



Change in Vocational Technical Education

Change is a constant in vocational-technical education in Massachusetts and features occupational updates to keep pace with skill requirements in the workplace and innovations in the learning process that often place vocational-technical education in a leadership position in education reform.

A few examples of the influences that support or instigate change in vocational-technical education in Massachusetts are:

Technical Committees—statewide advisory groups of business, industry and labor representatives in specific occupations.

Local Advisory Committees—program advisory committees for each state approved (Chapter 74) program, general advisory committees, and advisory committees for occupational/vocational-technical education (P.L. 98-524).

Followup Studies of Completers and Employer Satisfaction Surveys: Student, teacher, and employer surveys.

Public Hearings sponsored by the State Department of Education, Division of Occupational Education; by the State Council on Vocational Education; by the Massachusetts Commission For Occupational Education; and by other organizations.

These changes occur in every occupational area and throughout the sectors of the state's vocational-technical education system. A sample of the changes that have recently been initiated or expanded on a statewide basis follow:

- **Applied Academics**

The success of Principles of Technology (applied physics) has been complemented with the development and field testing of Applied Mathematics and Applied Communications. A fourth program is now under development: Applied Biology/Chemistry. These programs have been presented in both comprehensive and vocational-technical high schools.

- **Mathematics/Science/Communication Competencies**

A part of the state's Competency Based Vocational Education effort has been the identification of the academic concepts and skills that interrelate to identified competencies in specific occupations. Detailed manuals have been prepared and provided to vocational-technical schools.

- **Statistical Process Control**

An increasing number of employers seek an awareness of statistical process control for their personnel and a 'first-in-the-nation' curriculum for high school students has been field tested in two Massachusetts vocational-technical high schools during Fiscal Year 1989. The revised curriculum, rich in problem solving techniques, will be shared widely upon completion.

- **Targetted Professional Improvement**

One result of expanded partnerships between vocational-technical education and the private sector has been the design of professional improvement programs that focus on the specific needs of teachers to address changes in occupational skill demands and the incorporation of new learning methods and techniques for their students.

Change is a constant in vocational-technical education in Massachusetts.

■ Definitions

A. Excerpt From Public Law 98-524 (Perkins Act)

"Vocational education" means organized educational programs which are directly related to the preparation of individuals for paid or unpaid employment in such fields as agriculture, business occupations, home economics, health occupations; marketing and distributive occupations; technical and emerging occupations; Modern industrial and agriculture arts; and trades and industrial occupations, or for additional preparation for a career in those fields, and in other occupations requiring other than a baccalaureate or advanced degree and vocational student organization activities as an integral part of the program. For purposes of this definition "organized education program" means only

- (1) Instruction, including career guidance and counseling, related to the occupation or occupations for which the students are in training or instruction necessary for students to benefit from that training; and
- (2) The acquisition, including leasing, maintenance, and repair of instructional equipment, supplies, and teaching aids. The term does not mean construction, acquisition of initial equipment or buildings, or the acquisition or rental of land.

Vocational education must include programs, services and activities of high quality, realistic in light of actual or anticipated opportunities for gainful employment or entrepreneurship, and suited to the needs, interests and abilities of the persons to be served.

B. Excerpt from Chapter 74 Regulations Governing Vocational Education

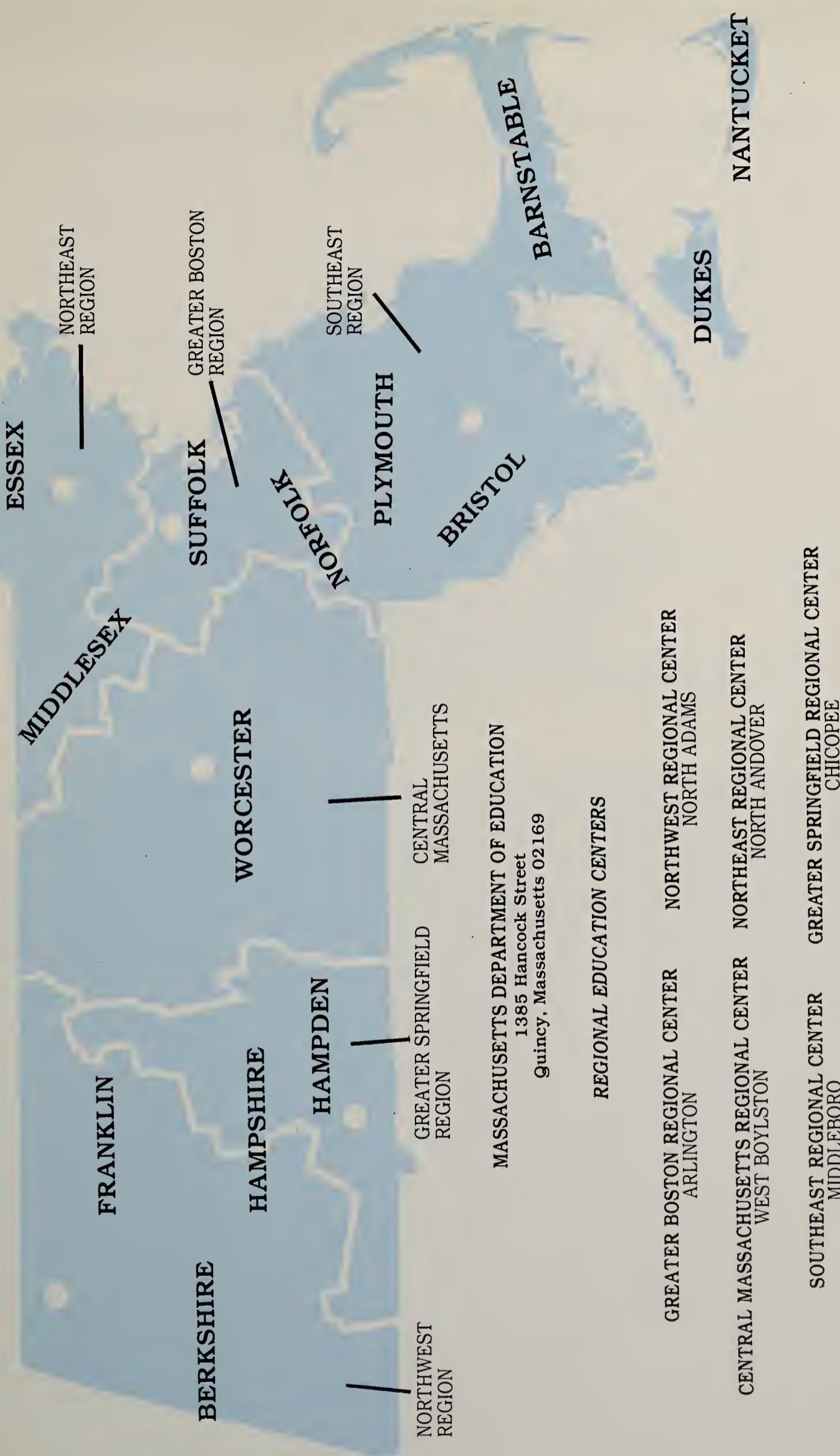
The major goal of vocational education is to prepare students to seek, acquire and succeed in a specific trade, technical, or occupational field requiring specialized or technical skills for entry into that field. Vocational education must include programs, services and activities of high quality, realistic in light of actual or anticipated opportunities for gainful employment or entrepreneurship, and suited to the needs, interests and abilities of the persons to be served. Wherever feasible, actual work experience should be included as a component of the education program. These programs, services and activities must prepare a student to enter an occupation; or if the student is already a part of the labor market, upgrade or update his or her knowledge and skills or teach new skills with which to achieve stability or advancement in employment.

Vocational education shall also give students the skills and attitudes necessary for self-employment.

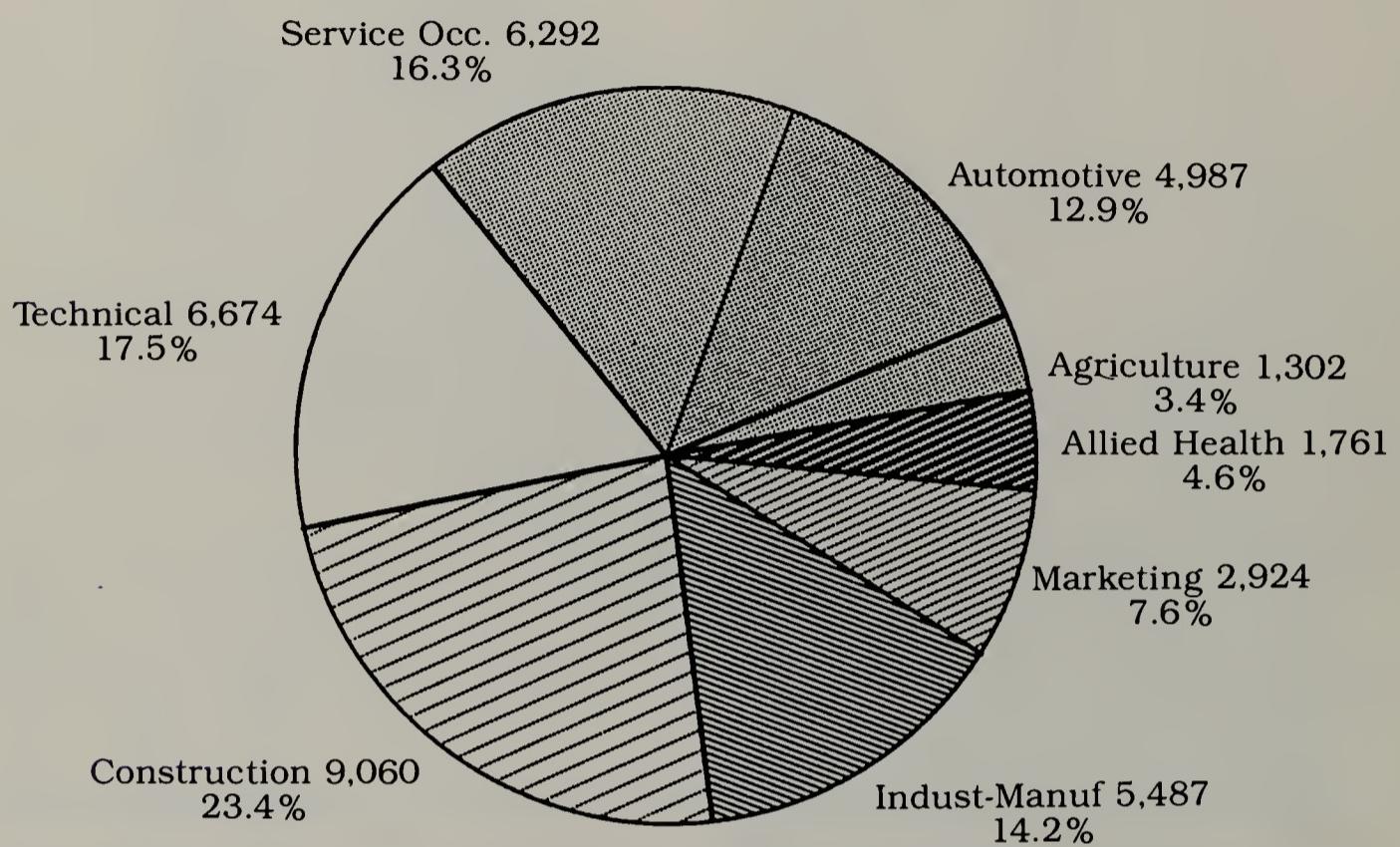
C. Occupational Education

The term occupational education is used to encompass a variety of programs and courses that provide learning opportunities to students that range from career and life skills to specific occupational preparation. Business and office education, home economics, and industrial arts (technology education) programs are part of occupational education and these programs are offered primarily in comprehensive schools. General Laws Chapter 71, Section 17, requires any city or town with more than 20,000 inhabitants to maintain a course in the manual (industrial arts) and household (home economics) arts.



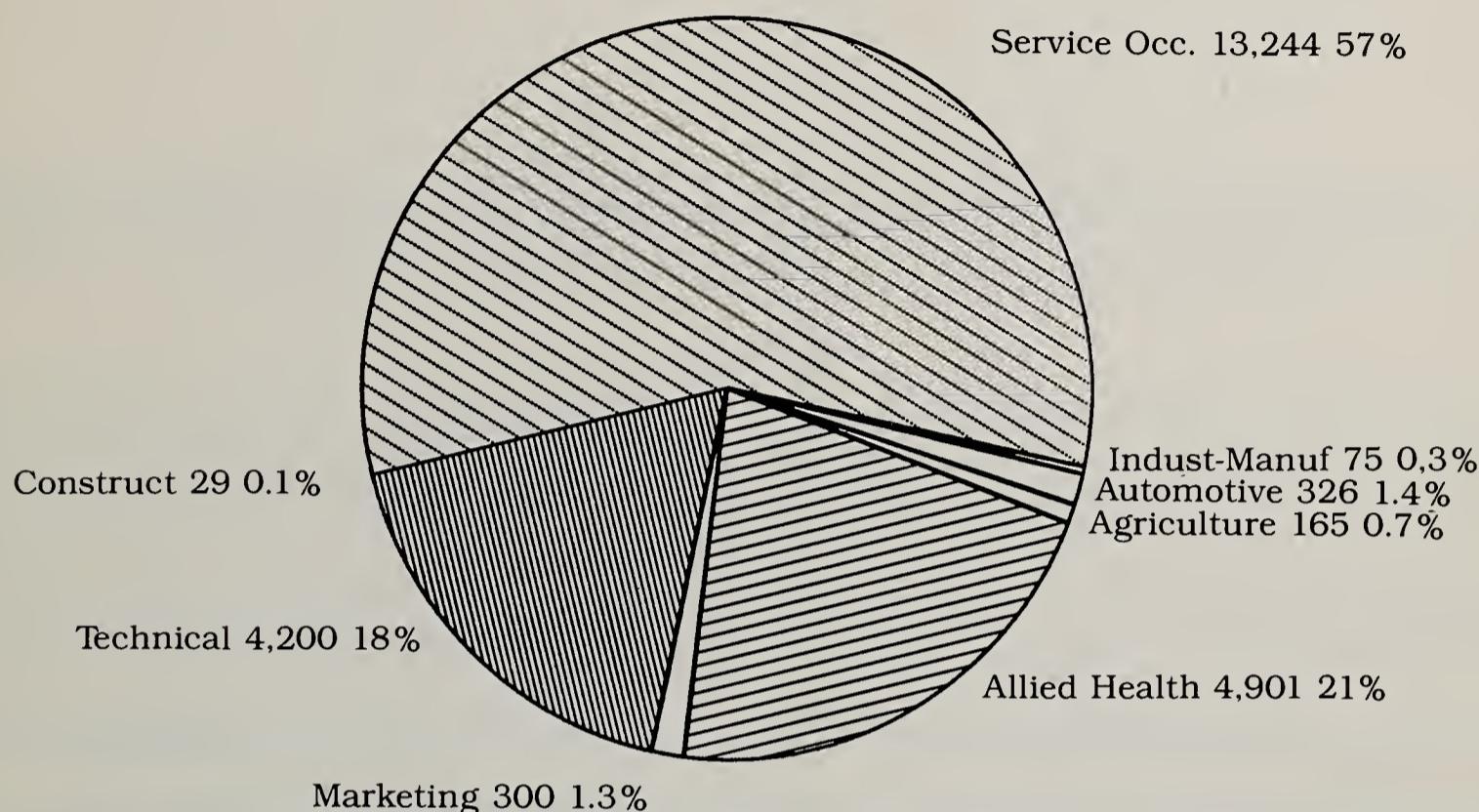


**FISCAL YEAR 1988 CHAPTER 74 ENROLLMENTS
GRADES 9-12**



AGRICULTURE				
010100 Agriculture Production	85	171004 Masonry	337	SERVICE OCCUPATIONS
010101 Animal Science	189	171005 Painting and Decorating	672	090201 Care and Guidance of Children
010102 Plant Science	3	171007 Plumbing and Pipefitting	1013	454
010198 Small Animal Science	51	171099 Construction and Maintenance	470	090202 Clothing Management, Production and Services
101199 Poultry Science	4	171400 Electrical	2809	242
010300 Agricultural Mechanics	26		9060	090203 Food Management, Production and Services
010500 Ornamental Horticulture	287	INDUSTRIAL MANUFACTURING		146
010501 Arboriculture	25	169903 Packaging Technology	7	090205 Institutional Home Management and Services
010502 Floriculture	66	172200 Maritime Occupations	159	366
010504 Landscaping	70	172302 Machine Shop	1934	169907 Business Technology
010600 Agricultural Resources	59	172305 Sheet Metal	532	227
010700 Forestry	56	172306 Welding and Cutting	449	170200 Appliance Repair
019900 Other Agriculture	381	172399 Metalworking, other (fab)	928	218
	1302	172700 Plastics Occupations	24	170700 Commercial Art
		173200 Stationary Energy Sources	78	766
ALLIED HEALTH		173300 Textile Production & Fabrication	104	170900 Commercial Photography
070101 Dental Assistant	57			38
079299 Medical Lab Technician	8	173500 Upholstering	114	172602 Cosmetology
070203 Nursing Assistant	751	173600 Woodworking and Cabinetmaking	564	1360
070904 Medical Assistant	134	173900 Other Industrial Occupations	54	172900 Quantity Food
070906 Health Aide	811	179901 Industrial Sewing Machine Repair	39	2092
	1761	179903 Packaging Mechanics	19	172901 Baking
		179905 Exploratory	482	31
			5487	172902 Cook/Chef
				352
				6292
AUTOMOTIVE				TECHNICAL
170301 Body and Fender Repair	1655	160105 Chemical Technology	29	
170302 Automotive Mechanics	2979	160108 Electronic Technology	40	
171200 Diesel Mechanic	140	160117 Scientific Data Technology	107	
173100 Small Engine Repair	213	160401 Programming	1342	
	4987	171300 Drafting	1419	
		171500 Electronics	1810	
CONSTRUCTION		171503 Radio and Television Repair	135	
170100 Air Conditioning and Refrigeration	466	171900 Graphic Arts	1699	
171001 Carpentry	3278	171902 Printing Press	147	
171003 Heavy Equipment Operation and Maintenance	15	172100 Instrument Maintenance and Repair	36	
				6764
				TOTAL
				38577

OCCUP. EDUC. ENROLLMENTS COMM. COLLEGES FISCAL YEAR 1988



AGRICULTURE		CONSTRUCTION		INDUSTRIAL/MANUFACTURING		MARKETING		SERVICE		TECHNICAL	
01.0101 Animal Science	40	17.1002 Electricity	29	14.9900 Other Office	72						
01.0299 Animal Technology	14			16.0599 Human Services	566						
01.0500 Ornamental Horiculture	68			16.0602 Fire and Fire Safety	71						
01.0504 Landscaping	43			16.0605 Police Science	443						
	165			16.0698 Law Enforcement	1499						
ALLIED HEALTH				16.9908 Legal Assisting	286						
07.0101 Dental Assistant	99			17.0700 Commercial Art	309						
07.0102 Dental Hygienist	231			17.2602 Cosmetology	43						
07.0103 Dental Lab Technician	34										
07.0203 Medical Lab Assistant	110										
07.0299 Medical Lab Technician, Other	25										
07.0301 Nursing	2090										
07.0302 Practical Nursing	53										
07.0305 Surgical Technology	47										
07.0401 Occupational Therapy	87										
07.0402 Physical Therapy	73										
07.0405 DeafnessInterpreter	48										
07.0501 Radiologic Technician	240										
07.0504 Diagnostic Sonography	32										
07.0701 EnvironmentalTechnician	105										
07.0800 Mental Health Technician	419										
07.0903 InhalationTherapy	152										
07.0904 Medical Assistant	134										
07.0906 Health Aide	134										
07.0907 Medical Emergency Technician	10										
07.1100 Gerontology	19										
07.9900 Other Health Care	405										
07.9902 Dietary Aide	41										
14.0499 Medical Record Technician	44										
14.0704 Medical Secretarial	124										
14.0709 Medical Transcriptionist	45										
14.0152 Biomedical Technician	70										
	4901										
AUTOMOTIVE											
16.0104 Automotive Technology	326										

OCCUPATIONAL EDUCATION FACILITIES IN MASSACHUSETTS BY REGION

TYPE OF FACILITY	GREATER BOSTON	NORTH-EAST	CENTRAL MASS.	SOUTH-EAST	GREATER SPRINGFIELD	NORTH-WEST	TOTALS
COMMUNITY COLLEGES AND OTHER PUBLIC POSTSECONDARY	5	3	3	3	2	2	18
REGIONAL VOCATIONAL-TECHNICAL SCHOOLS	2	7	6	8	1	2	26
COUNTY VOCATIONAL-AGRICULTURAL SCHOOLS	1	1	0	1	0	0	3
CITY & TOWN VOCATIONAL SCHOOLS WITH FIVE OR MORE CH. 74 PROGRAMS	11	6	2	2	5	1	27
ACADEMIC REGIONAL SCHOOLS WITH CHAPTER 74 PROGRAMS	0	2	5	7	0	2	16
OTHER HIGH SCHOOLS, WITH ONE TO FOUR CHAPTER 74 PROGRAMS	5	14	8	12	2	2	43
OTHER HIGH SCHOOLS, WITH NON-CHAPTER 74* PROGRAMS	19	20	28	23	2	2	94
TOTALS	43	53	52	56	12	11	227

* NON-CHAPTER 74 PROGRAMS INCLUDE BUSINESS AND OFFICE OCCUPATIONS AND CONSUMER AND HOMEMAKING.

"In order to gain access to jobs that possess desirable traits such as good pay, fringe benefits, and employment stability, workers increasingly must possess not only solid basic skills but also occupational-specific skills. In the past, occupation-specific skills were frequently transmitted to workers through informal on-the-job training activities. However, as non-goods-producing industries now generate the overwhelming share of new jobs in the state, formal classroom training is supplementing on-the-job training as the primary way in which occupational skills are acquired.

In Massachusetts such occupational training is delivered through the state's secondary school vocational education programs and through the diverse array of colleges and universities found in the Commonwealth. Access to either one of these occupational preparation systems should substantially enhance the employment prospects of young men and women. But those who fail to gain access to such occupational training will find themselves at a severe disadvantage in the demand environment of the state economy."

*Massachusetts Occupational Outlook
Massachusetts Department of
Employment and Training
1989*

It should now be clear to most Americans that just as there are different people, there are different teaching and learning styles. The old idea of one best system of education is now thoroughly discredited. What we need in the future is a school system as varied as the interests, talents, and capacities of our teachers and students. There is no reason to package all education in the same way, or to treat all students and teachers as if they were identical. They're not."

*Winning the Brain Race:
A Bold Plan to Make Our
Schools Competitive*

*David T. Kearns and Denis P. Doyle
1988 ICS Press*

"The Vocational Technical Education System offers a practical, applied style of learning that is best suited to the needs of many students and adults. It is an essential part of a diverse education system which addresses national needs and individual interests, learning styles and goals."

*Council of Chief State School Officers
1988*

